

**ANDREW P. HOOD, M.S.**  
**Curriculum Vitae**

Sustainable Resources Group Intn'l, Inc.  
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Andrew Hood has 17 years of field and research experience as a hydrologist with expertise in surface and groundwater hydrology, water resources engineering, fluvial geomorphology, and erosion control. He is co-owner of Sustainable Resources Group Intn'l, Inc. Mr. Hood leads SRGII's natural systems engineering projects, which use an integrated approach to achieve structural, natural resource, and land management remedies to enhance watershed functions. In addition to playing a key technical role on many of SRGII's projects, he heads the company's marketing and business development efforts. Mr. Hood has carried out a wide range of projects including conducting watershed analysis, designing and implementing stream channel and wetland restoration, wetland delineation, conducting geomorphological studies, assessing instream flow issues and modeling instream flow hydraulics, conducting water quality analysis, and developing Best Management Practices (BMPs) and establishing methodologies to monitor their implementation and effectiveness. His background includes experience in NEPA compliance and environmental impact analysis for a range of watershed-related projects. Previously he worked as a hydrologist for the US Forest Service conducting a range of activities including: establishing a methodology to monitor implementation and effectiveness of BMPs; collecting and analyzing water quality and quantity data; field surveys and restoration for channel improvement projects; designing and implementing watershed restoration projects; developing plans and supervising installation of erosion control materials and bio-engineered structures; and serving on a watershed oversight committee developing a non-point source pollution control plan. He has a B.S. (Watershed Hydrology) from the University of Arizona (1992) and a M.S. (Civil and Environmental Engineering, Water Resources Engineering) from Utah State University (1999).

**EDUCATION**

M.S. Civil and Environmental Engineering: Water Resources Engineering, Utah State University, Logan, UT, 1999.

B.S. Watershed Hydrology (Soil Science minor), University of Arizona, School of Renewable Natural Resources, College of Agriculture, Tucson, AZ, 1992.

**WORK EXPERIENCE**

**Principal/Co-Owner**, *Sustainable Resources Group Intn'l, Inc., Honolulu, HI, September 2005-present*

Manages water resource investigations; develops engineering designs; coordinates work with other experts; serves as expert witness. Heads marketing and business development efforts. Continues as Hydrologist/Geomorphologist/Water Resources Specialist.

**Hydrologist/Geomorphologist/Water Resources Specialist**, *Sustainable Resources Group Intn'l, Inc., Honolulu, HI, May 2001 – September 2005*

Conducts all aspects of water resources projects for wetland restoration and enhancement designs, including preparation of erosion assessment and solution designs, investigation of surface and ground water for various projects, and fluvial geomorphologic assessment. All of these tasks require extensive knowledge of the various disciplines nested within water resources engineering and watershed management principles to provide clients with comprehensive solution designs and management strategies to restore or enhance ecosystem functions using both traditional engineering and natural systems engineering designs. Deliverables for projects include reports, environmental assessments, hard copy and digital maps, other figures and preparation of permits.

**Natural Systems Engineer/Hydrologist/Independent Consultant**, *Self employed, May 2001 – September 2005*

Provided consulting expertise on variety of water and natural resource issues. Advised Neighborhood Committees on water resource studies to restore stream and watershed functions. Conducted a feasibility and technical evaluation of a ground water well system for use in wetland

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restoration for State of Hawaii. Served as an expert witness in mediation for a case requiring design solutions and treatments for watershed erosion and stream morphology restoration. Consulted for research projects at the University of Hawaii.

***Environmental Engineer, Mark M. Siah and Associates, Honolulu, HI, January – July 2000***

Conducted water resources investigations in the private consulting arena. Clients included the City and County of Honolulu and the State of Hawaii. Projects included sighting of ground water wells, conducting inventory of canal systems, and preparing Environmental Assessments and other documents. Completed a preliminary hydrologic investigation for the placement of water catchments for ecological restoration on the island of Kaho'olawe.

***Research Engineer, Institute of Natural Systems Engineering, Department of Civil & Environmental Engineering, Utah State University, Logan, Utah, April 1995 – January 2000, July 2000-April 2001***

Supervised and participated in the collection of bathymetric and discharge data used in assessing instream flow issues. This was accomplished using survey grade GPS equipment, single and multi-beam acoustic Doppler echosounders. Responsibilities included developing field methodology, study design and choosing site locations. Modeled instream flow hydraulics, bio-energenics and sediment transport rates using a variety of computer models. Analyzed watershed stream basins for water quantity and quality evaluations. Conducted geomorphologic studies of streams systems for channel capacity investigations and floodplain/riparian delineation. Developed restoration design plans for open channel waterways. Reviewed climatic data and forecast to project data collection schedules. Prepared project budgets for fieldwork and office analysis. Wrote project reports, and conducted various analyses of data summarizing findings of field investigations and needs for future studies.

***Hydrologist, Payette National Forest (USFS), McCall, Idaho, May 1993 - April 1995***

Established a methodology to monitor implementation and effectiveness of Best Management Practices. Collected and analyzed water quality and quantity data for various projects. Carried out field surveys and restoration for channel improvement projects. Designed and implemented watershed restoration projects. Developed plans and supervised the installation of erosion control materials and bio-engineered structures. Participated in a working group to assess effects of forestry practices on long-term soil productivity. Worked as a member on various NEPA teams preparing EIS and EA documents. Carried out meteorological station maintenance and station network. Served as a member on a watershed oversight committee developing a non-point pollution control plan and as Forest technical representative on a team developing a total maximum daily load management plan for a watershed with a variety of management activities and numerous stakeholders.

***Hydrologist Technician, Sawtooth National Forest (USFS), Sawtooth National Recreation Area, Stanley, Idaho, May 1992-February 1993***

Employed hydrological methodology and channel hydraulics knowledge to inventory anadromous and resident fisheries habitats. Collected water quality and quantity data for various projects. Conducted erosion source inventories and assigned best management practices to rectify erosion sources. Prepared written reports and entered data from field surveys. Reviewed water right claims for use in Biological Assessment preparation.

***Hydrologist Technician, Targhee National Forest (USFS), Idaho Falls, ID. 83401, 1989-1991, (summer seasonal positions while attending University of Arizona)***

Reviewed documents and laws concerning current and past water right claims for the Snake River Adjudication. Utilized a GIS program for analysis of Snake River Adjudication. Assisted in the following activities: monitoring and inventorying watershed conditions; inventorying erosion sources, collected stream flow measurements, wetland mapping, timber sale evaluation, project design for watershed restoration. Employed Rosgen method to classify forest streams.

***Field Technician, Forest Service-USDA, Anchorage, AK, 1988, (summer seasonal positions while attending University of Arizona)***

Performed a multiple resource inventory on public and private land in Alaska pursuant to congressional mandate. Conducted wildlife and vegetation transects in remote locations. Organized field data into comprehensive written reports.



***Phantom Ranch Assistant Manager, Fred Harvey Company, Grand Canyon, Arizona, May, 1983 - October, 1987***

Served as assistant manager of a ninety-bed guest ranch located in the bottom of the Grand Canyon. Duties included supervision and scheduling of personnel, preparing budgets, ordering supplies, maintenance of irrigation system, public and guest relations, and numerous miscellaneous tasks.

**PROFESSIONAL MEMBERSHIPS**

American Water Resources Association  
 American Geophysics Union  
 International Association for Environmental Hydrology  
 International Erosion Control Association  
 Society for Restoration Ecology  
 American Society of Civil Engineers  
 Geological Society of America  
 Center for Watershed Protection  
 American Institute of Hydrology

**PUBLICATIONS**

- Kaneshiro, K.Y., P. Chinn, K.N. Duin, A.P. Hood, K. Maly and B.A. Wilcox. 2005. Hawai'i's Mountain-to-Sea Ecosystems: Social-Ecological Microcosms for Sustainability Science and Practice. *EcoHealth*, 2 (4), December.
- Hood, A.P., K. Duin and B. Wilcox. June 2004. Marine Corps Base Hawaii, Landfill and Northeast Crater Catchment Erosion Assessment Report with Recommendations. SRGII.
- Hood, A.P., K. Duin and B. Wilcox. March 2003. Marine Corps Base Hawaii, Mokapu Central Drainage Canal: Concept Design Solutions Report. SRGII.
- Hood, A.P., K. Duin and B. Wilcox. March 2003. Marine Corps Base Hawaii, Percolation Ditch: Concept Design Solutions Report. SRGII.
- Hood, A.P., K. Duin and B. Wilcox. December 2002. Marine Corps Base Hawaii, MCTAB, Watershed Impairment Study with Recommendations for Stream and Estuarine Repair. SRGII.
- Hood, A.P. June 2000. Ground Water Well Site Delineation Environmental Assessment. Marc M. Siah and Associates.
- Hood, A.P. November 1999. Review of Field Sites and Methodologies Used in the Collection of Multi-Dimensional Bathymetric Data. Institute for Natural Systems Engineering. Utah Water Research Laboratory. Utah State University.
- Hood, A.P. November 1999. Summary of Stage-Discharge and Hydraulic Controls: WRIA1 Nooksack River Basin. Institute for Natural Systems Engineering. Utah Water Research Laboratory. Utah State University.
- Hood, A.P. May 1999. Classification of Substrate Types Using Bio-Sonic Visual Bottom Typing Methods, Model Efficacy and Validation. M.S. Thesis. Utah State University.
- Hood, A.P. December 1998. Large Scale Climatological Analysis of Western U.S., Report on Large Scale Tele-Connections in the Western U.S., Utah Water Research Laboratory.
- Hood, A.P., R.C. Addely. February 1998. Instream Flow Study Protocols: Collection of Hydraulic attributes for 2D Modeling. Institute for Natural Systems Engineering. Utah Water Research Laboratory. Utah State University.
- Hood, A.P. November 1998. Protocols for Delineating Representative Stream Study Site Selection, Institute for Natural Systems Engineering. Utah Water Research Laboratory. Utah State University.
- Hood, A.P. December 1997. Protocols for Delineating Representative Stream Study Site Selection, Institute for Natural Systems Engineering. Utah Water Research Laboratory. Utah State University.
- Hood, A.P., J. Fitzgerald. January 1995. Watershed Processes, Impact Assessment of Blackwell Fire on Upper Payette Watershed. Payette National Forest, McCall Idaho.
- Hood, A.P. April 1995. Study Results and Technical Analysis of Total Maximum Daily Loads: Gold Fork Drainage, Cascade Reservoir TMDL Watershed Working Group Report. Payette National Forest-Idaho Department of Health. McCall Idaho.
- Hood, A.P. March 1995. Technical Report: Total Maximum Daily Load Study- Study Protocols and Sampling Methodologies. Payette National Forest. McCall Idaho.

Hood, A.P. December 1994. Technical Report. Study Results of Carbon Nitrogen Ratio Analysis: Assessment of Slash Piles on Soil Productivity. Payette National Forest.

Hood, A.P. October 1994. Water Quality Report for the Secesh Drainage. Payette National Forest. McCall, Idaho.

Hood A.P. and K Clifton. December 1993. Forest Report: Stream Gage Network and Water Quality Monitoring using ISCO Samplers. Payette National Forest. McCall, Idaho.

Hood, A.P. October 1993. Anadromous Fish Habitat Inventory: Sawtooth National Recreation Area. Sawtooth National Forest. Stanley, Idaho.

Hood, A.P., September 1993. Results of Salmonid Fish Inventory: Upper Salmon River Watershed Sawtooth National Recreation Area. Sawtooth National Forest. Stanley, Idaho.

Hood, A.P. and M. Moulton. August 1992. Report on Sampling Protocols for Evaluation of Physical Habitat Components: Salmon Habitat with Sawtooth National Recreation Area. Sawtooth National Forest. Stanley, Idaho.

## **OTHER QUALIFICATIONS**

Skills gained through academic and work experience: I have skill in running the following models and software: WMS, HECRAS, DAMBRK, RMA2, PHABSIM, MODTRAN, ERDAS IMAGINE, SPLUS and a variety of other software programs. I am trained in operating single and multi beam echosounders, survey grade GPS equipment, total stations, laser levels, Hydrolab, tensiometers, densimeters and a variety of surface water flow meters. I have installed surface water monitoring equipment on both wadeable and non-wadeable rivers. I have established ground based grid systems for remote sensing surveys. I have extensive experience operating cataraft boats used for data acquisition in all types of flow conditions. I developed and designed a cable suspension system used for stream flow discharge and sediment measurements. I have experience with wildlife and vegetation survey techniques. I have worked in a professional capacity with personnel from engineering, biological and natural resources fields. I was the lead researcher responsible for the setup and data transfer between multi- beam, and single beam sonar echo sounders with GPS coordinate strings used to collect multi dimensional topographies of riverbeds. I am proficient in trouble shooting and reading Fortran code and writing source code in Visual Basic. I have designed and worked with machinist to develop customized hardware to support a variety of technical and scientific equipment used to collect field data. I was certified by the USFS as Helicopter Operations Technician.

## **COURSE WORK**

Completed the following graduate level classes: Stochastic Hydrology – Open Channel Flow – Open Channel Models - Subsurface Flow and Transport - Geostatistics – Engineering Hydrology – Hydroclimatology – Water Institutions - Surface Water Hydrology – Riparian Ecology – Environmental Law and Policy.

Completed the following courses:

Innovative Technologies for Storm and Waste Water, 2005, USEPA.

Federal Emergency Management Agency, Flood Hazard and Flood Delineation Course, 2004.

Erosion and Sediment Control Course and Field Practicum, 2004, Hawaii DOH.

NPDES Phase 2 Storm Water Management Course and Field Practicum, 1998, US EPA and Idaho DOH.

HAZMAT Training Course, 1997.

Open Channel Hydraulics Modeling Short Course, 1996.

Non-Point Source Water Quality Course, 1995, USEPA and Idaho DOH.

Surveying short course, 1995.

Fire Ecology short course, National Interagency Fire Center, Boise, Idaho, 1994.

NEPA TEAM Planning course, 1994.

Writing Effective NEPA Documents Course, 1993.

Rapid Bio Assessment Course, 1993. (also taught)

Wild Land Fire Fighting School, USFS, 1992.

## **PRESENTATIONS**

July 2005, Stream Classification using Fuzzy C Clustering. Hawaii Conservation Conference, Honolulu, Hawaii.

October 2003, Site Proposal for Multi-Purpose Building Plan, Environmental Assessment. Public Meeting by NOAA. Kihei, Hawaii.

*August 2000*, Presentation of Field Procedures and Site Selection Criteria to Collect Multi-Dimensional Channel Topography. WRIA1 Instream Flow Workshop. Bellingham, Washington.

*August 1999*, Multi-Dimensional Modeling: Field Protocols and Methodologies. International Eco-Hydraulics Conference. Salt Lake City, Utah.

*March 1999*, Auto Regressing Moving Average (ARMA): Predictive Modeling of Runoff-Reservoir Routing. Special Seminar Series, Department of Civil and Environmental Engineering, Utah State University, Logan, Utah

*March 1998*, Findings of Flow Recommendations: Diamond Fork River. Central Utah Water Authority Working Committee. Hebner, Utah.

*April 1998*, Rain Gage Network: Principal Component Analysis, Utilization of a Digital Elevation GIS Model to Estimate Rainfall Distribution Over a Partially Gauged Watershed. Department of Civil and Environmental Engineering Seminar Series. Utah State University, Logan, Utah

*February 1998*, Instream Flow Recommendations. USFS, Snake River Adjudication Working Conference. Boise, Idaho.

*December 1997*, Methods and Field Procedures Used to Establish Stream Gaging Network. USFS Snake River Adjudication Working Conference. Boise, Idaho.

*November 1996*, Presentation of Field Methodologies Used to Collect Instream Flow Parameters: Utah Water Research Laboratory Lecture Series, Department of Civil and Environmental Engineering, Utah State University. Logan, Utah.